AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. – 12. (canceled)

13. (previously presented) A power regulator for responding to transient power demands, comprising:

a negative transient response portion configured to response to fast transient negative current events, the negative response portion comprising a sense circuit and a first reference current source, each coupled to an amplifier for controlling a first output device; and

a positive transient response portion configured to respond to fast transient positive current events, the positive response portion comprising a sense circuit and a second reference current source, each coupled to an amplifier for controlling a second output device;

wherein the output devices respond to transient events faster than the operating bandwidth of the amplifier.

14. (previously presented) The power regulator for responding to transient power demands of claim 13, wherein the output device in the negative transient response portion comprises an output transistor configured to be in an on state when power is supplied to the negative transient response portion.

15. (previously presented) The power regulator for responding to transient power demands of claim 14, wherein the sense circuit in the negative transient response portion comprises a sense

transistor coupled to the first reference current source and the output transistor, wherein quiescent current of the output transistor is less than the current supplied by the output transistor in response to a transient power demand.

16. (previously presented) The power regulator for responding to transient power demands of claim 13, wherein the amplifier in the negative transient response portion is coupled in series between the current source and the sense transistor.

17. (original) The power regulator for responding to transient power demands of claim 15, wherein the sense transistor is a bipolar device.

18. (original) The power regulator for responding to transient power demands of claim 15, wherein the sense transistor is a metal oxide semiconductor device.

19. (original) The power regulator for responding to transient power demands of claim 14, wherein the output transistor is a bipolar device.

20. (original) The power regulator for responding to transient power demands of claim 14, wherein the output transistor is a metal oxide semiconductor device.

21. (previously presented) The power regulator for responding to transient power demands of claim 13, wherein the output device in the positive transient response portion comprises an

output transistor configured to be in an on state when power is supplied to the positive transient response portion.

22. (currently amended) The power regulator for responding to transient power demands of claim 21, wherein the sense circuit in the positive transient response portion comprises a sense transistor coupled to a the second reference current source and the output transistor, wherein quiescent current of the output transistor is less than the current supplied by the output transistor in response to a transient power demand.

23. (currently amended) The power regulator for responding to transient power demands of claim ~~21~~ 22, wherein the amplifier in the positive transient response portion is coupled in series between the current source and the sense transistor, wherein the output transistor responds to transient events that are faster than the operating bandwidth of the amplifier.

24. (original) The power regulator for responding to transient power demands of claim 22, wherein the sense transistor is a bipolar device.

25. (original) The power regulator for responding to transient power demands of claim 22, wherein the sense transistor is a metal oxide semiconductor device.

26. (currently amended) The power regulator for responding to transient power demands of claim ~~21~~ 22, wherein the sense transistor is a bipolar device.

27. (previously presented) The power regulator for responding to transient power demands of claim 21, wherein the sense circuit is a metal oxide semiconductor device.

28. (previously presented) The power regulator for responding to transient power demands of claim 21, wherein at least one of the reference current sources comprises a resistor and a voltage source.

29. (currently amended) The power regulator for responding to transient power demands of claim 21, wherein the second reference current source comprises a resistor and a voltage source.

30. (original) A power regulation system comprising the power regulator of claim 13.

31. (previously presented) The power regulation system of claim 30, further comprising a primary voltage regulator coupled in series to the power regulator, wherein the primary voltage regulator is configured to supply power to a load and respond to slow transient events, and wherein the power regulator is configured to respond to fast transient events.

32. (original) The power regulation system of claim 31, wherein the power regulator is configured to respond to transient events that occur at a rate greater than about 10 Megahertz, and wherein the primary voltage regulator is configured to respond to transient events less than about 10 Megahertz.

33. (original) A power regulation system for supplying power to a microelectronic device and for suppressing transient power demands, the system comprising:

a first voltage regulator configured to supply power to a load and to respond to slow transient power demands, the first voltage regulator including a first voltage output, a second voltage output, and a ground output; and

a second voltage regulator coupled to the second voltage output of the first voltage regulator, the second voltage regulator configured to respond to fast transient power demands, the second voltage regulator comprising a sense amplifier, a current source, and a current sink.

34. (original) The power regulation system of claim 33, wherein a voltage at the second voltage output is greater than a voltage at the first voltage output.

35. (original) The power regulation system of claim 33, further comprising a sense element configured to detect a rate of change of current and produce a signal proportional to the rate of change of current.

36. (original) The power regulation system of claim 33, wherein the sense amplifier is coupled to the first voltage regulator.

37. (original) The power regulation system of claim 33, further comprising a sense element configured to detect a rate of change of voltage and produce a signal proportional to the rate of change of voltage.

38. (original) The power regulation system of claim 33, further comprising a plurality of charge sources configured to distribute power to a plurality of locations on a microprocessor.

39. (original) The power regulation system of claim 33, wherein the second voltage regulator further comprises an amplifier coupled to the current source, a sense transistor coupled to an output of the amplifier, and an output transistor coupled to the sense transistor.

40. (original) The power regulation system of claim 39, wherein the sense transistor is a bipolar device.

41. (original) The power regulation system of claim 39, wherein the sense transistor is a metal oxide semiconductor device.

42. (original) The power regulation system of claim 39, wherein the output transistor is a bipolar device.

43. (original) The power regulation system of claim 39, wherein the output transistor is a metal oxide semiconductor device.

44. (original) The power regulation system of claim 33, wherein the second voltage regulator is configured to respond to transient events that occur at a rate greater than about 10 Megahertz, and wherein the first voltage regulator is configured to respond to transient events less than about 10 Megahertz.

45. (original) The power regulation system of claim 33, further comprising a sense element configured to receive a signal from a load, the signal indicative of power required by at least a portion of the load.

46.- 51. (canceled)

52. (original) A power regulator configured to respond to transient load events, the regulator comprising:

an amplifier including a transconductance stage and an output stage;

a compensation capacitor coupled to the output of the transconductance stage of the amplifier and further coupled to ground;

a sense circuit including a threshold voltage reference and a comparator coupled to the threshold voltage reference, the sense circuit coupled to the input of the transconductance stage of the amplifier and further coupled to a reference voltage source; and

a boost circuit coupled to the sense circuit, the boost circuit including a first switch coupled to a boost capacitor and further coupled to a voltage source, and a second switch coupled to the boost capacitor and the input of the output stage of the amplifier.

53. (original) The power regulator configured to respond to transient load events of claim 52, further comprising an output transistor couple to the output of the output stage of the amplifier.

54. (original) The power regulator configured to respond to transient load events of claim 53, further comprising a sense transistor electrically coupled to the output stage of the amplifier and further electrically coupled to the output transistor.

55. (previously presented) The power regulator for responding to transient power demands of claim 13, wherein the output devices each comprise: at least one bipolar device or at least one metal oxide semiconductor device and are emitter or source coupled, thereby responding to transient events that are faster than the operating bandwidth of the amplifier.